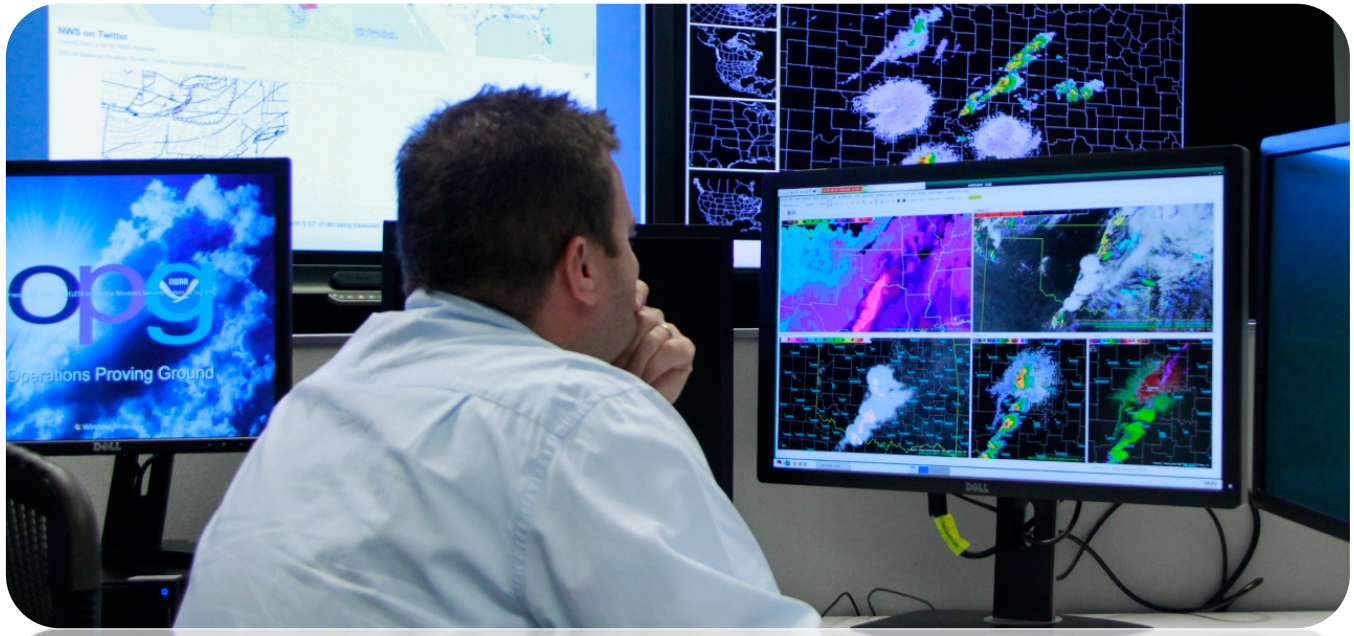
Testbed Roundup Briefing

Operational Readiness Evaluations in 2015

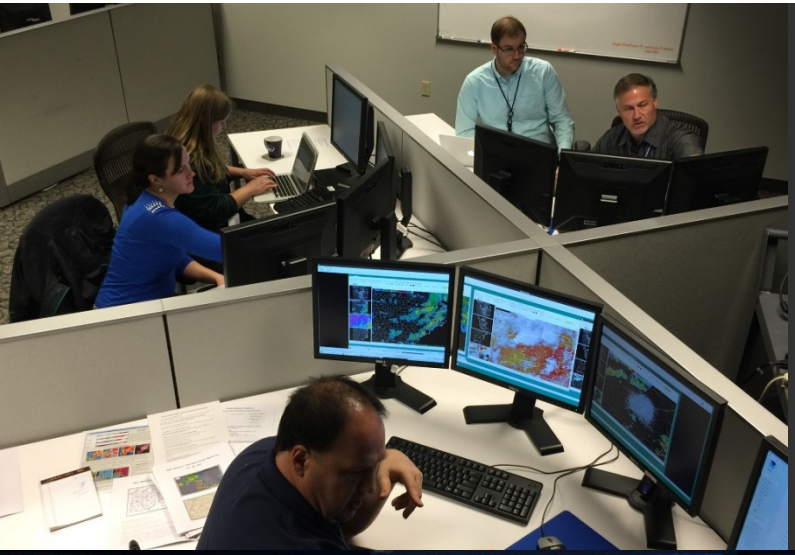
Kim Runk and Chad Gravelle



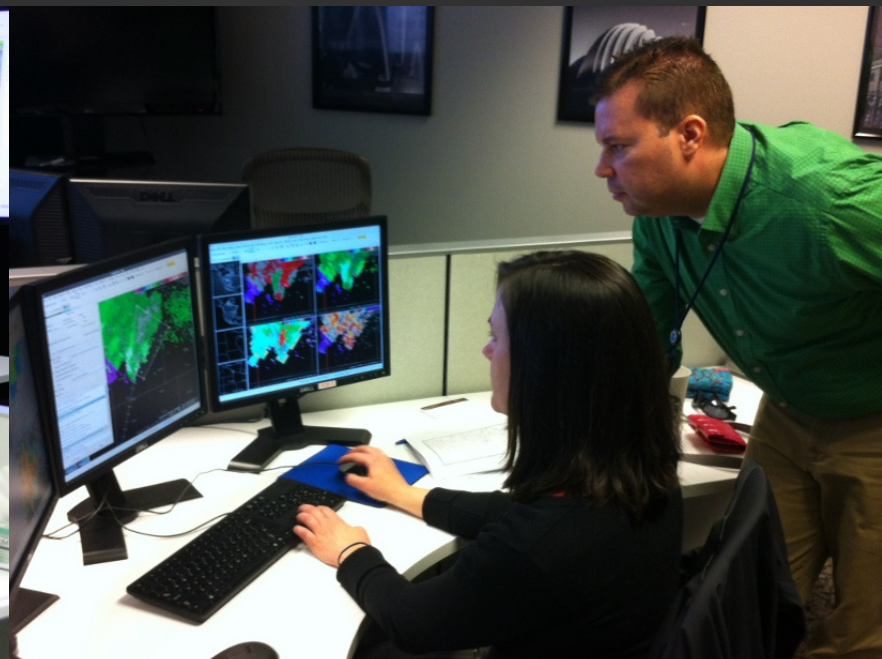
April 14, 2015

Purpose & Role in R2O Process

OPG Operations Proving Ground

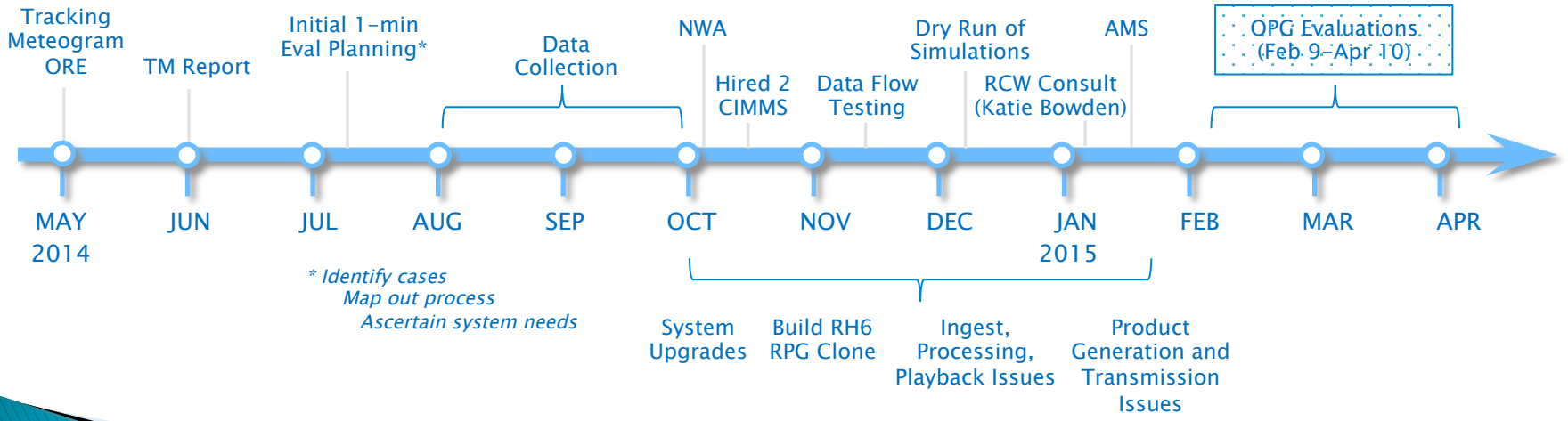


- Complement Testbeds
- Conduct “Last Mile” Evals
- Realistic Operational Setting
- Live or Historical Data
- Prototype Future Systems



Since Last TBPG Meeting

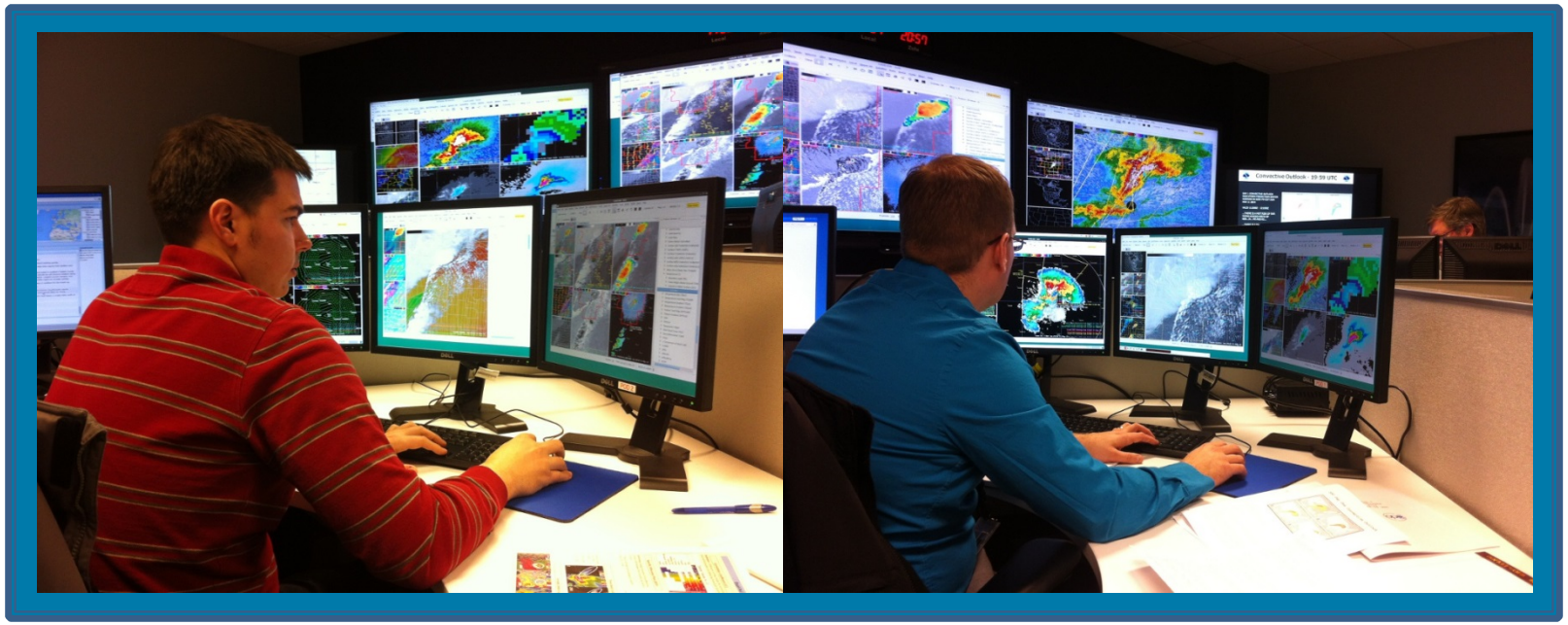
- Completed Phase 1 of Systems Build-up Plan
- Developed Innovative Playback Capability
- Conducted First Successful R2O Project
- Concluded Comprehensive User Evaluation Sessions in Preparation for GOES-R




Reno-Tahoe Valley Airports and Rim Fire Inset
1-minute Imagery Evaluations at the OPG

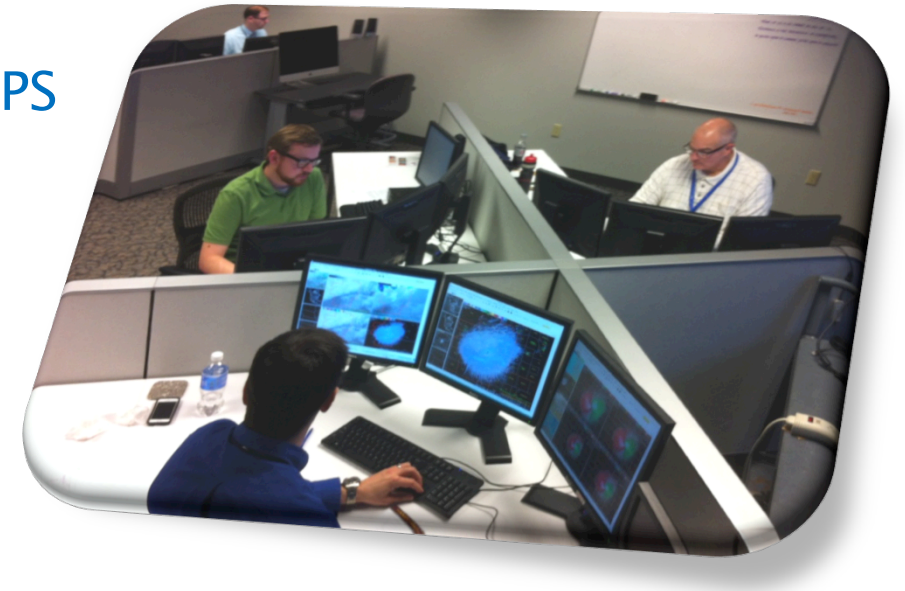
1-Minute Evaluation Goals

- Assess the Usefulness of 1-minute & 5-minute Satellite Imagery in NWS WFO Operations
  - *Variety of Analysis, Forecast, and Warning Tasks*
  - *Ability to Assimilate Data into Decision Making*
  - *Direct Decision Influence + Adding Confidence*
  - *Identify Potential Workload, Work Flow Issues*



Developing a Realistic Simulation

- AWIPS-II Playback and Product Generation Capability
  - RPG Clone, Ingest Scripts
  - WarnGen, Text Editor, AvnFPS
- Foundational Data Sets
  - Satellite Imagery
  - Base Radar Files
  - Model Output
  - Observations
  - Raw Lightning + Metadata

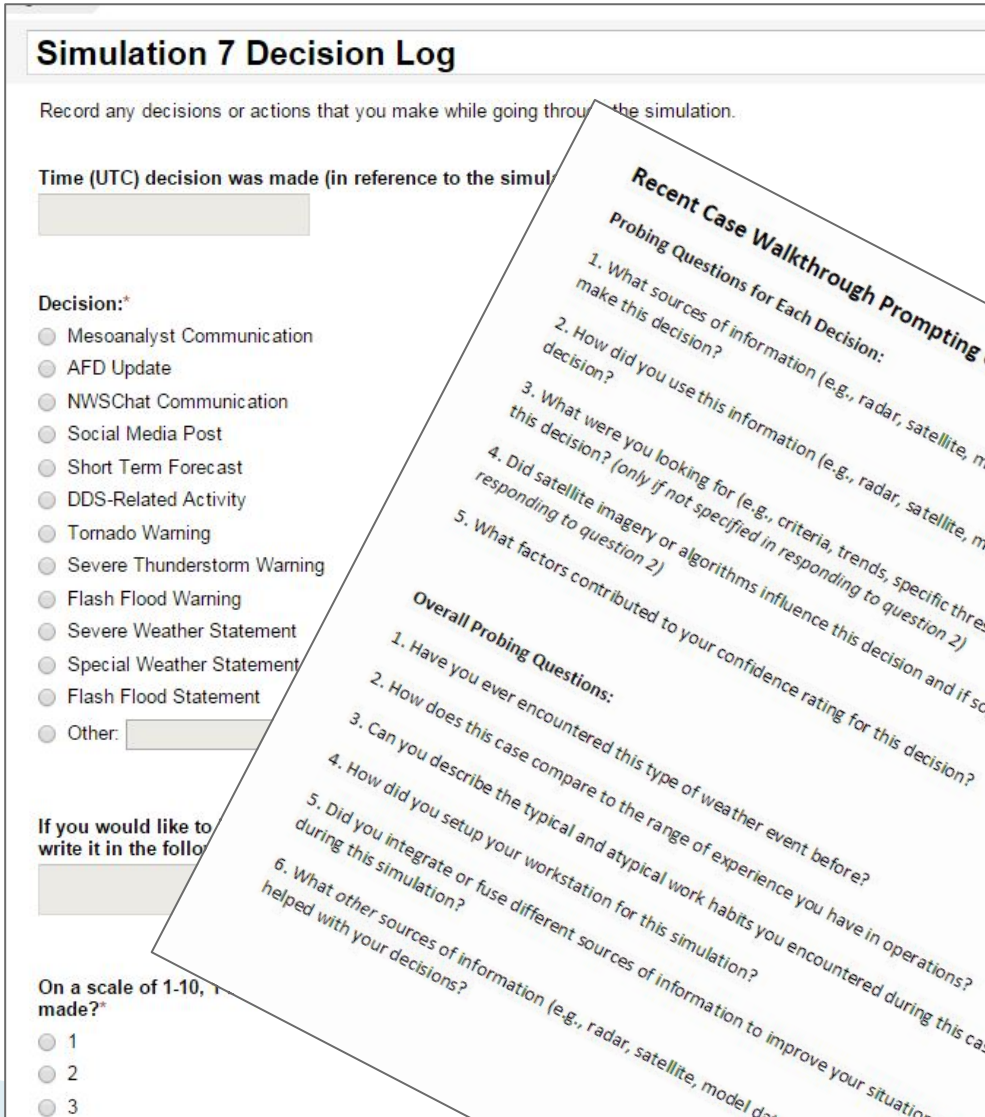


- Method of Providing “Spotter Reports”
- NWSChat Rooms for “Partner Interaction”
- Careful Planning: Assigned Task / Distractor Balance

OPG Operations Proving Ground

Decision Making Assessments

- Decision Logs and Written Survey
  - Type of Decision
  - Reasons for Decision
  - Confidence in Decision
- RCW Methodology
  - Recorded Desktop
  - Review Decision Logs
  - 3 Sweeps to Refine
- Keystroke Counter
- Group Debriefs
  - Intentional Training Moments



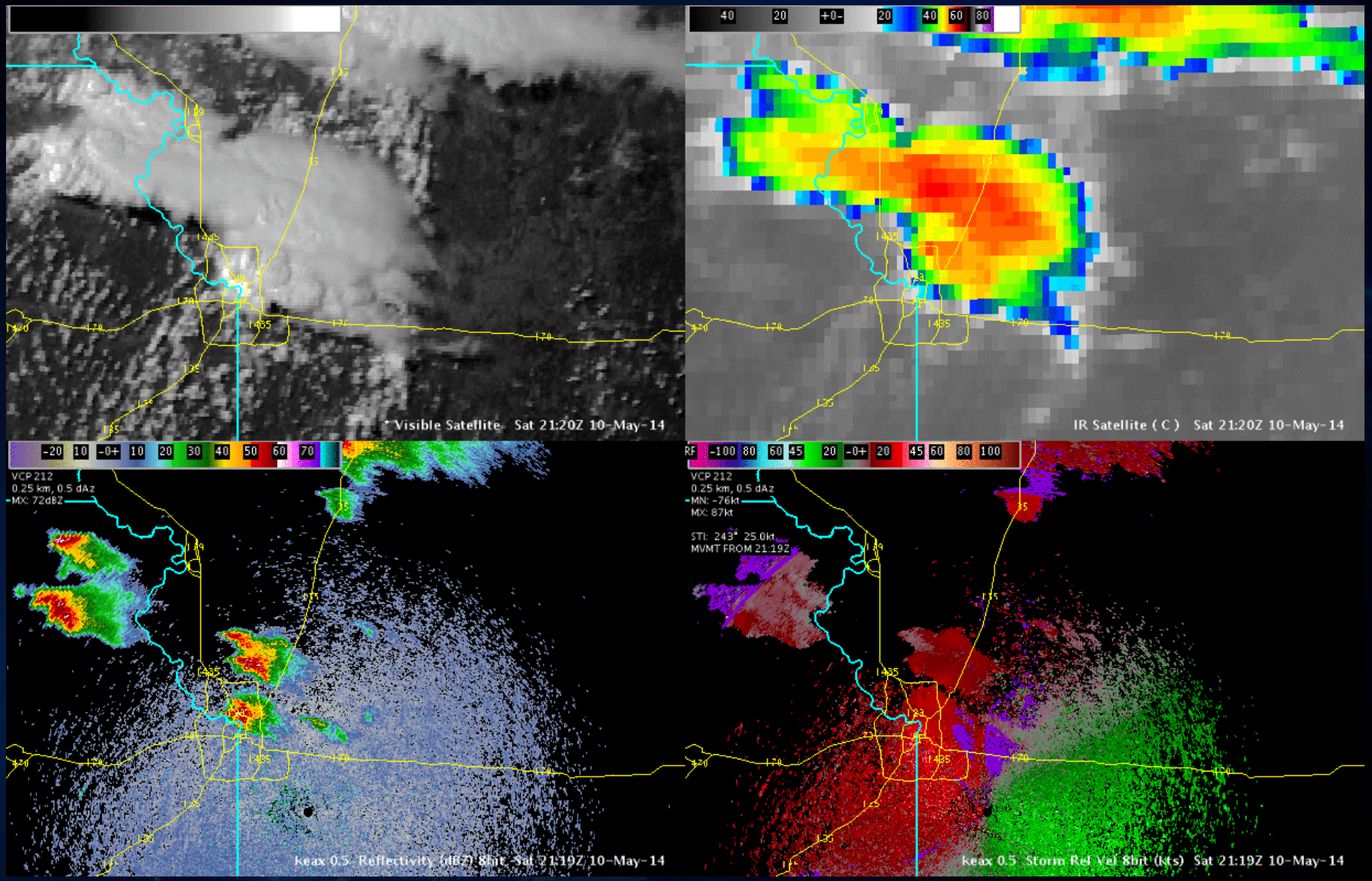
- Training Sim:
  - *Minneapolis area*
- Sim 1: Kansas City
  - *Aviation, DSS, AFD*
- Sim 2: Reno/Sac.
  - *Wildfire, Aviation, AQ*
- Sim 3: Kansas City
  - *Warning Forecaster (SVR/ TOR event)*
- Sim 4: Bay Area
  - *Aviation Forecasting*
- Sim 5: Raleigh
  - *Mesoanalyst*
- Sim 6: Las Vegas
  - *FFW/Advisories*
- Sim 7: Hastings
  - *Collaborative Team Warning Performance*

- 8 simulations, 7 locations, 17 forecasters over 6 weeks

- Convective and non-convective warning/forecast tasks

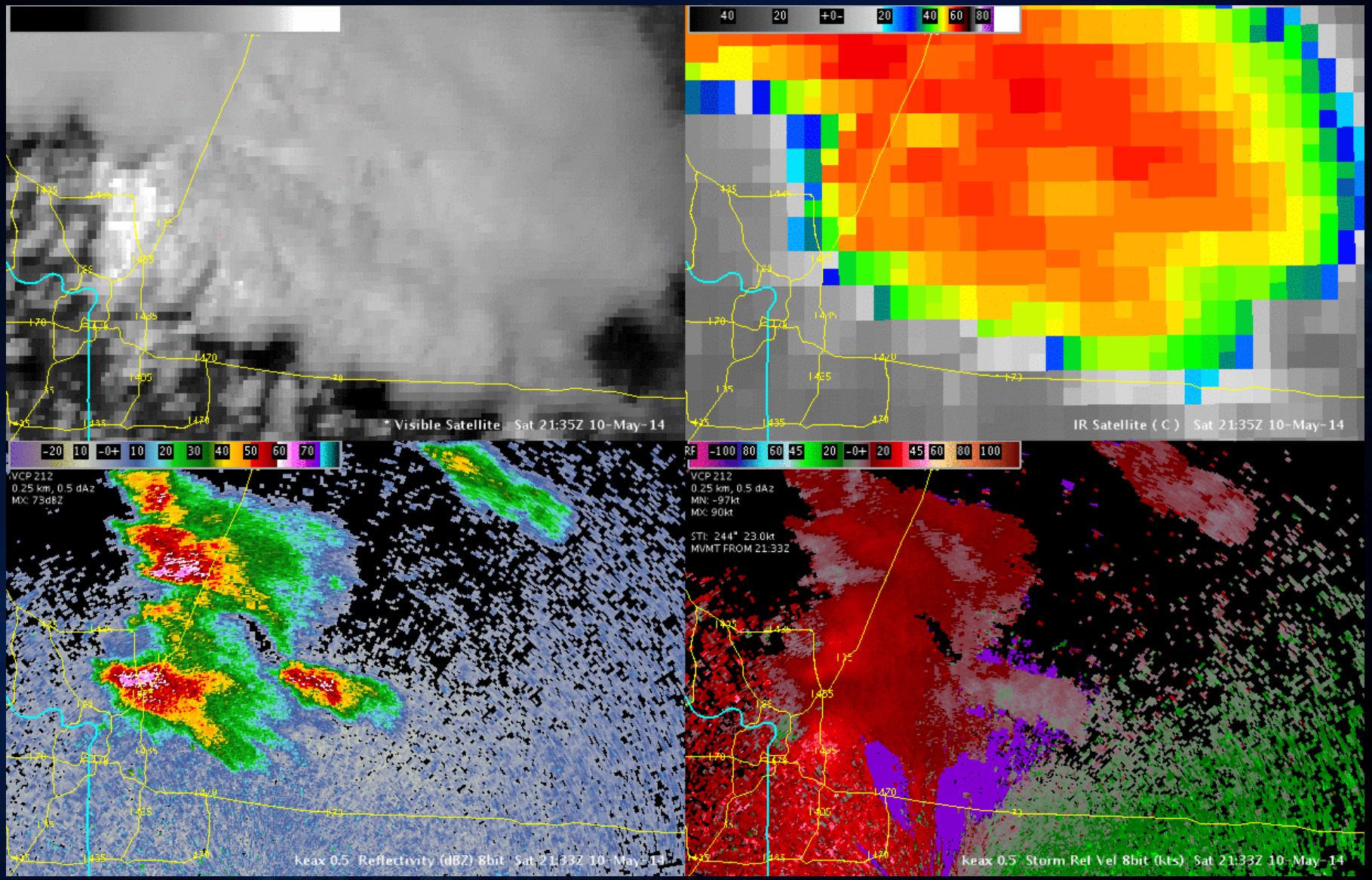
- Mix of individual assignments and collaborative roles

Forecaster Observations



2120-2230 UTC 10 May 2014

1-minute Satellite Imagery



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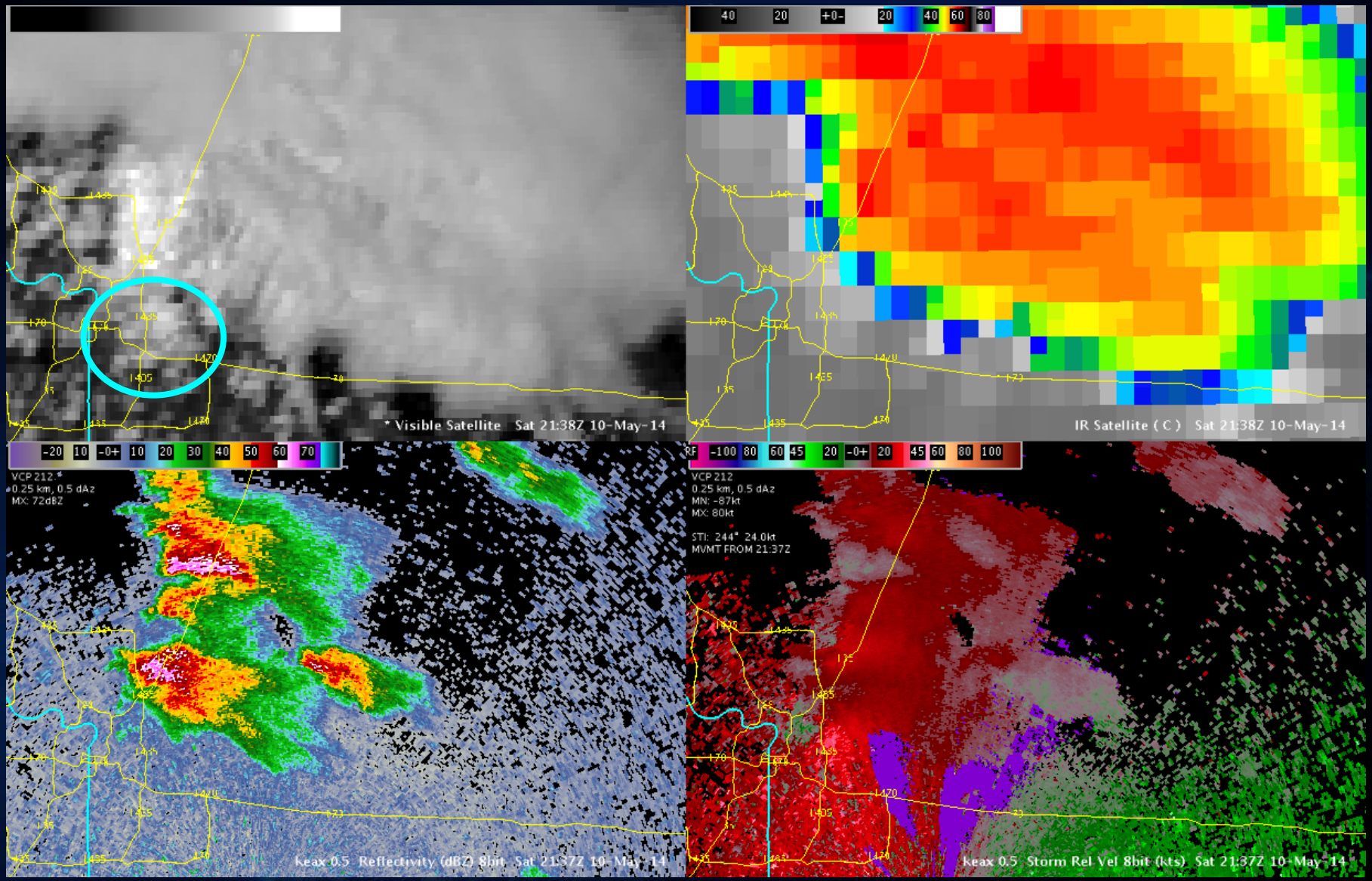
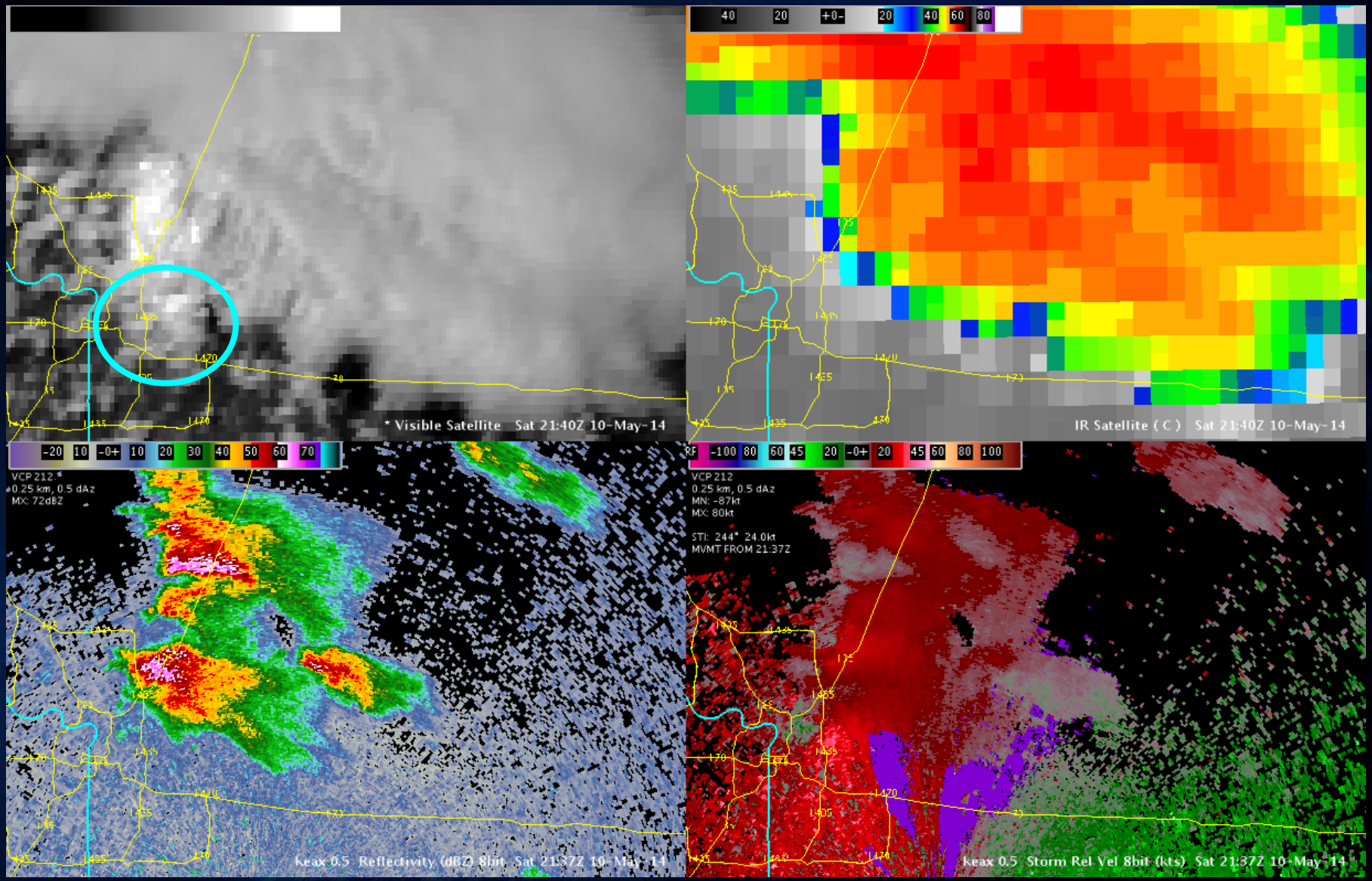
1-minute Satellite Imagery



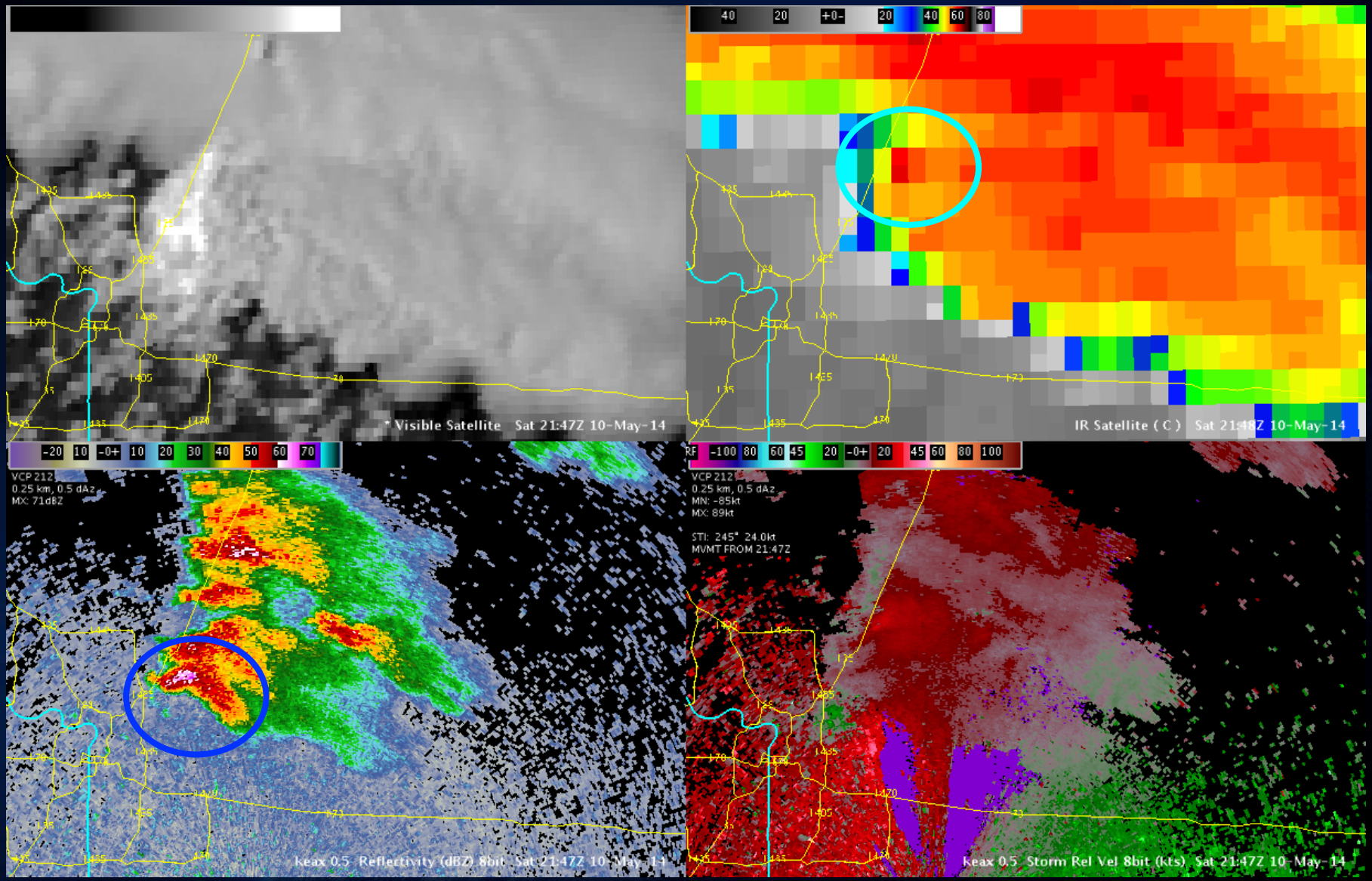
2138 UTC 10 May 2014

1-minute Satellite Imagery



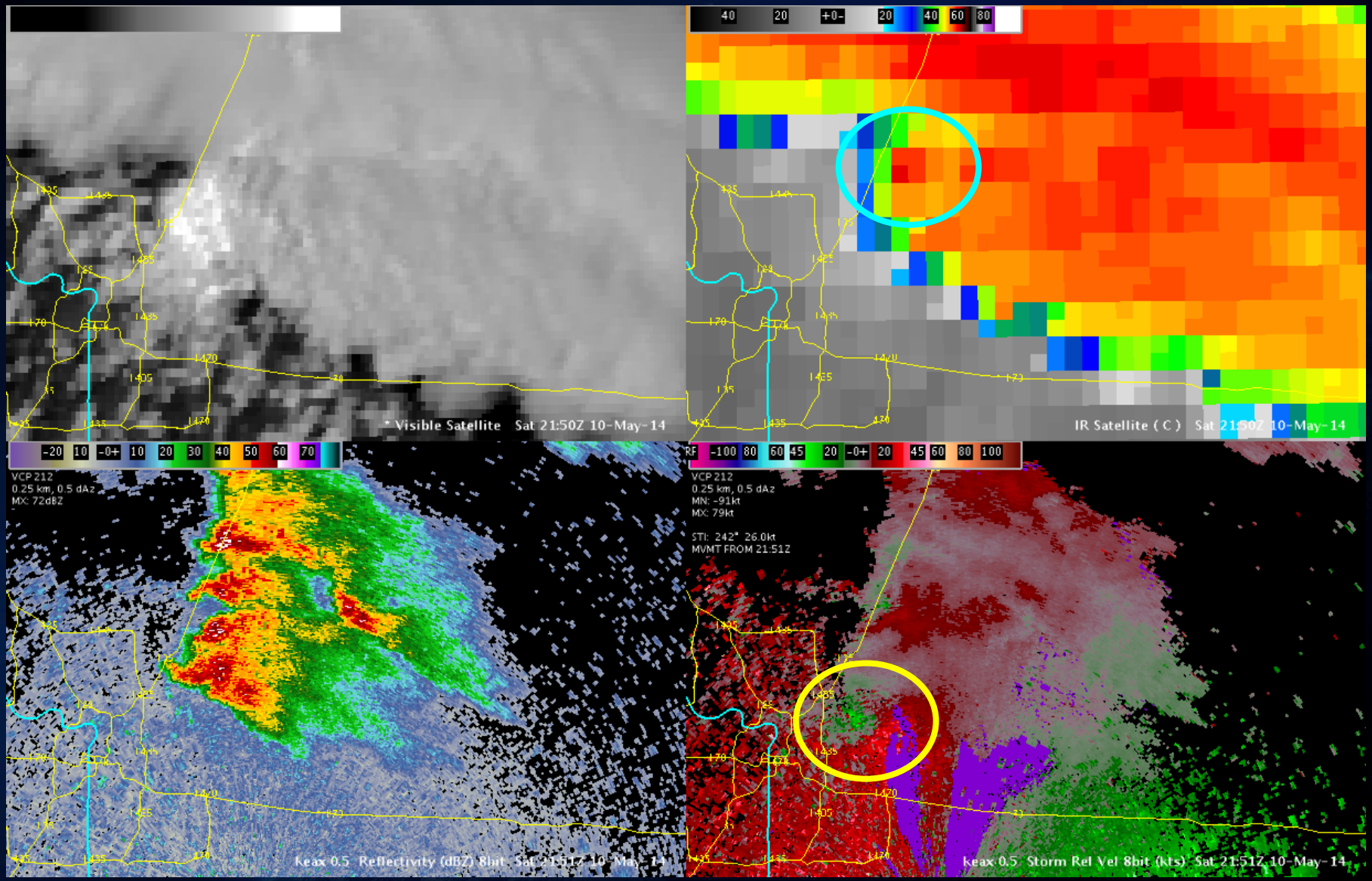
2140 UTC 10 May 2014

1-minute Satellite Imagery



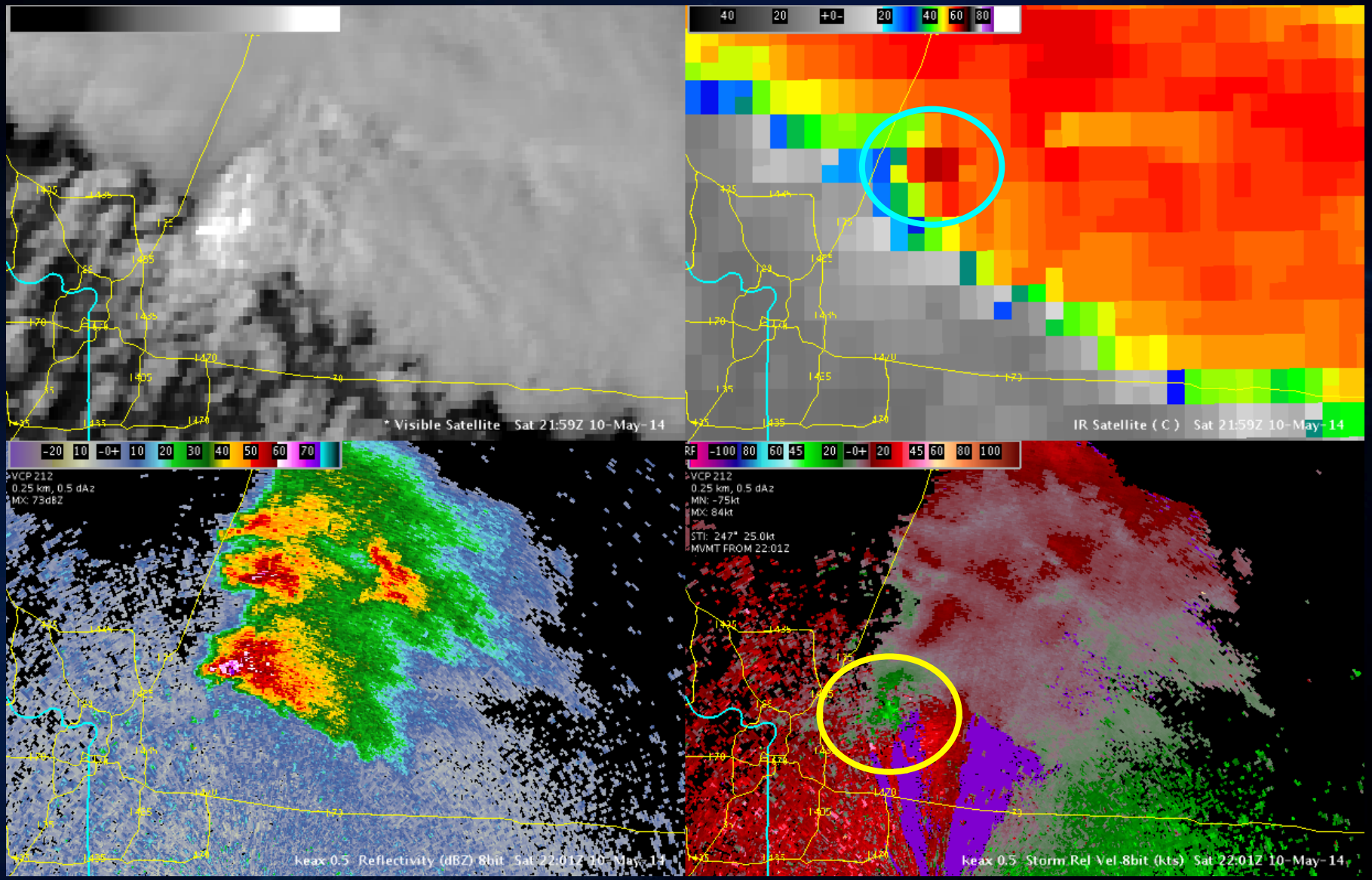
2147 UTC 10 May 2014

1-minute Satellite Imagery



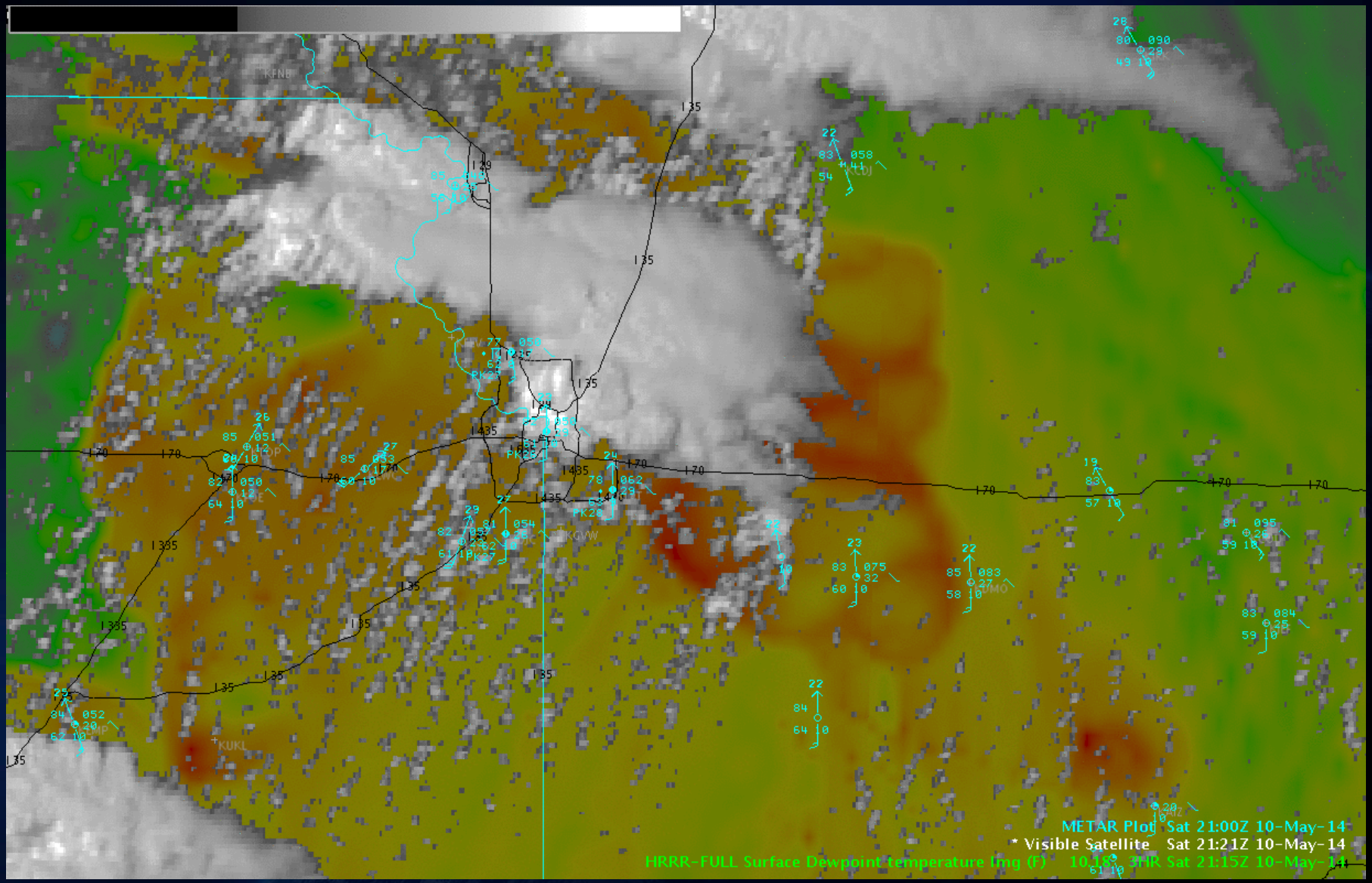
2150 UTC 10 May 2014

1-minute Satellite Imagery



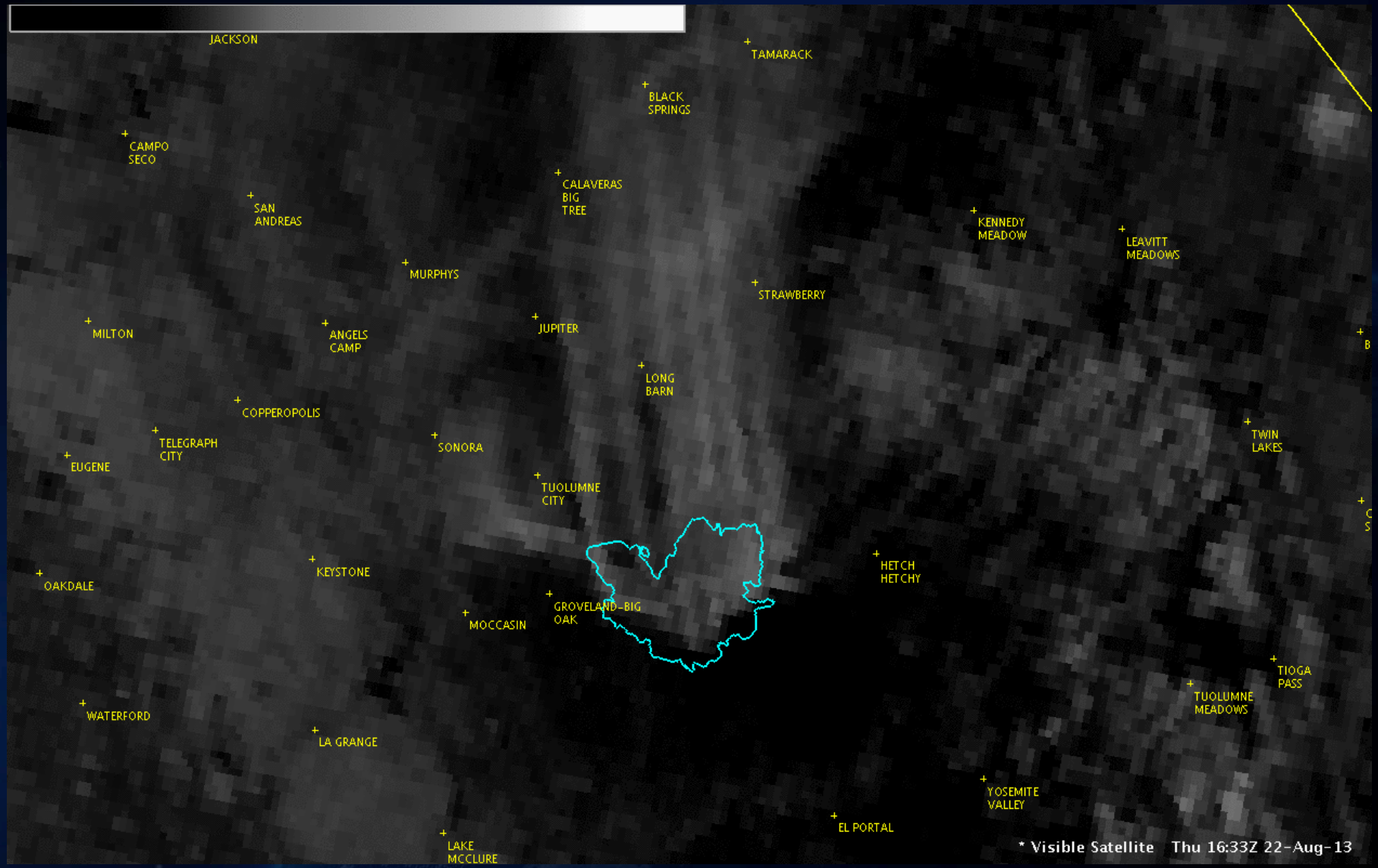
2159 UTC 10 May 2014

1-minute Satellite Imagery



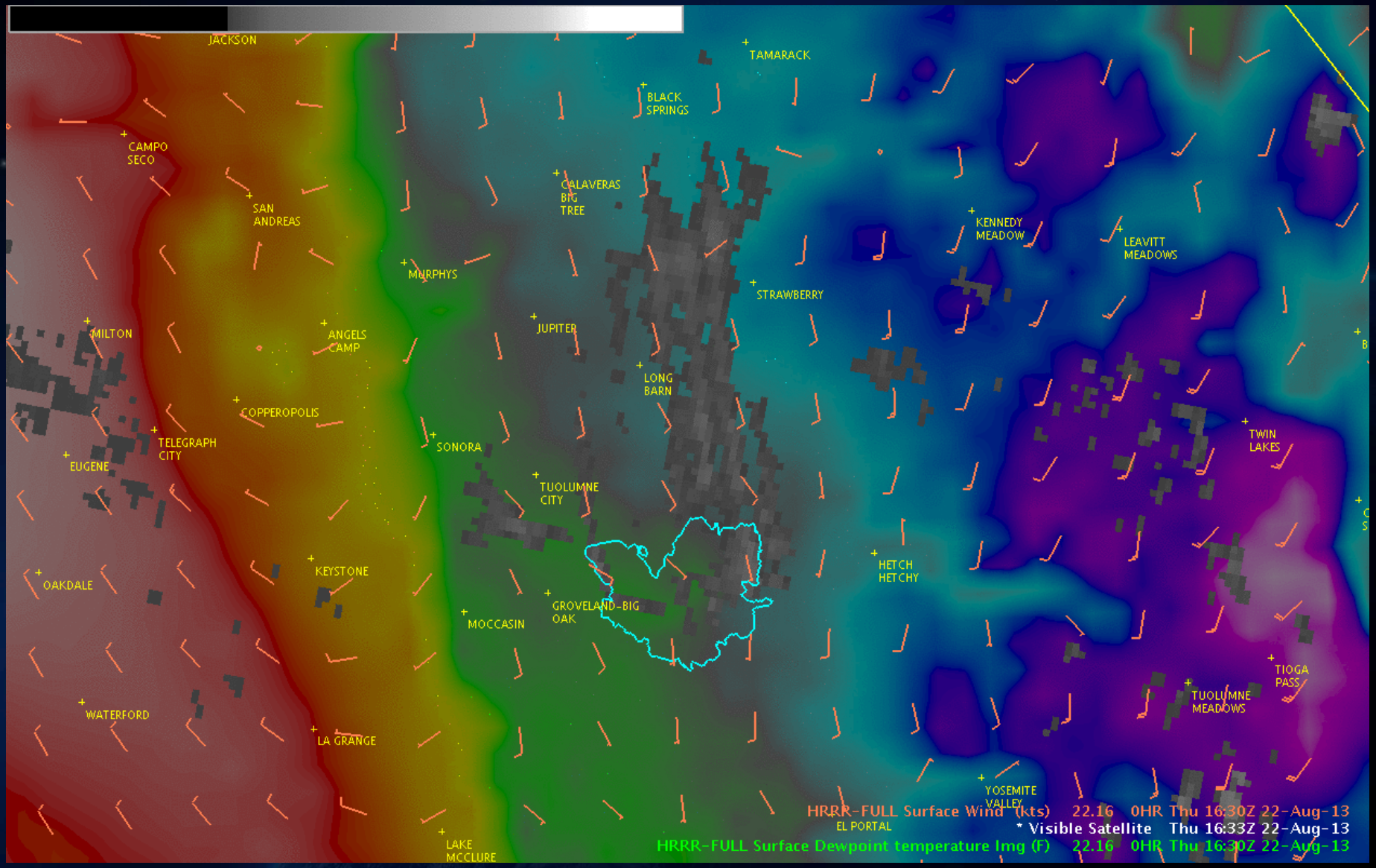
2121-2230 UTC 10 May 2014

1-minute Satellite Imagery



1630-1750 UTC 22 Aug 2013

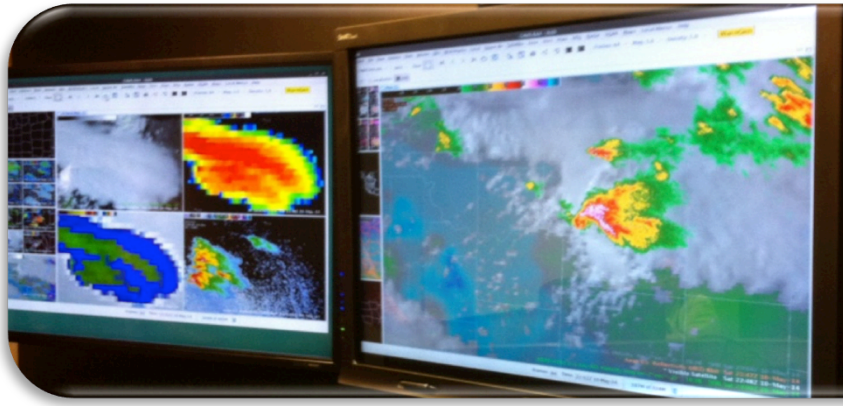
1-minute Satellite Imagery



1630-1750 UTC 22 Aug 2013

Preliminary Results

- **Strong, unanimous opinion**: Access to 5-minute imagery, time-matched to radar data offers dramatic improvement over existing capabilities.



Today, satellite imagery is not practical for many tasks, owing to latency issues, as well as temporal and spatial resolution.

- **Majority preference** (13/17): 5-minute default scan strategy; 1-minute domains activated "on demand".

Concerns over process by which these activations will be determined and adjudicated.

(Default: Mode 4; Mode 3 upon demand)

Preliminary Results

Situations Where 1-minute Imagery Adds Critical Value

Unanimous Agreement

- Mesoanalysis Role
- Convective Initiation
- Enhanced Confidence for Warning Decisions*
- Support to Large Wildfires
- Sparse Radar/Obs Coverage

Strong Agreement

- Aviation Forecasting Tasks (e.g., fog, low ceilings)

Disagreement

- Direct Assimilation by Convective Warning Forecaster

* *A few forecasters expressed the opinion that some convective warning decisions might be accelerated*

Evaluation Schedule

- GOES-R
  - GOES-14 SRSOR RT Evaluation
  - Himawari – ABI User Readiness
  - DOE – Validate Ingest, Integration
- Hazard Services Evaluation
  - Operational Hydro Warning Tests
  - Dependent on Software Maturity
- Secondary Virtual EDEX
  - Improve ORE Capabilities
  - Explore Viability for WFO Training
- Potential Upcoming Projects
  - Digital Aviation Services
  - Hazard Simplification
  - Relevant CSTAR Projects

OPG Operations Proving Ground

Three Up, Three Down

- Two Operational Evaluation Projects Completed
- Breakthrough Playback Capability Developed
- Full Schedule, Growing Awareness and Interest
- Staffing: Director, ITO = Most Critical
- Testbeds/OPG Roles, Pathways
- Planning/Execution Process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NOAA
Operations Proving Ground

Back-Up Slides

opg staff

NAME	POSITION
Kim Runk	Acting Director (NWS)
Chad Gravelle	Chief Met/Science Coordinator (GOES-R, UW CIMSS)
Derrick Snyder	Applications Development Met (OU CIMMS)
Katie Crandall	Risk Comm/Societal Impacts Met (OU CIMMS)
Jack Richardson	Systems Engineer (NOAALink contract with SID)

opg - FY16

PROJECT NAME / PURPOSE	PARTNERS
ABI User Readiness and Training Dev	STI, Pacific Region, GOES-R
Hazard Services Integrated Warning Tool	AWIPS PO, GSD, HSD
Virtualized AWIPS - Secondary Back-End	AWIPS PO, CRH SSD
Several pending VLab, CSTAR projects	SSDs, STI, TBPGCC
Potential dev projects via HWT (e.g., NSEA)	HWT, TBPGCC